Period 4 Homework (p.45 #1,4,5,6):

*1. The micrograph on the right shows a cell undergoing mitosis.*

*a. In what stage of mitosis is this cell?*

**-anaphase (the double-stranded chromosomes are splitting into single-stranded**

**chromosomes)**

*b. When cell division is complete, what cell cycle checkpoints will occur before the cell moves into interphase?*

**-If no more cells of that type are needed, then the cell enters a non-dividing stage.**

*4. Put the four photographs on the right in order, from the body part where cell division is happening most rapidly to the body part where cell division is happening least rapidly.*

***-*B – because it’s damaged skin & needs to be repaired**

**-A – undamaged skin (because cells only live for around 20 days, then need to be replaced)**

**-D – muscle cells (because they have a lifespan of around 15 years)**

**-C – brain cells (because they have a lifespan of 30-50 years)**

*5. Describe 3 conditions during the cell cycle that determine whether the cycle will be allowed to continue.*

**-If there are enough nutrients to support cell growth (then the cycle will continue).**

**-If the DNA has replicated (then the cycle will continue).**

**-If the DNA is damaged (then the cycle will not continue).**

*6. Some treatments for cancer involve the use of drugs that specifically attack cells that are actively dividing. Why would this be effective for fighting cancerous cells?*

**-Cancerous cells divide uncontrollably (because of abnormal genetic material), so a drug that targets actively dividing cells would be effective.**

**(The problem is that it would target other actively dividing cells too, like in the skin or the digestive tract lining.)**